

3.1

Land-Use Planning and Transportation

Promoting and encouraging modes of transportation other than the single-occupancy vehicle is the key to greening Federal facilities with respect to land-use planning for transportation. While the National Environmental Policy Act (NEPA) process for Federal facility development typically considers the compatibility of candidate sites with responsible transportation management goals, there is also much that can be done at existing facilities within typical planning “life cycles” to improve relative greenness. Promoting and creating incentives for public transportation, improving conditions for other modes of commuting, and retrofitting parking areas to be more environmentally responsible are among the possible improvements.

Land-use planning for transportation begins with the choice of site or property for development. Federal facilities are typically planned today to take advantage of existing or proposed public transportation systems. Keeping intense development closer to public transportation opportunities generally can save outlying and less-accessible areas for other uses or for preservation and protection.

Land-use planning has as its basis the idea that the use of land can be efficiently carried out to meet human needs and can be responsibly planned to conserve the finite resource base that it represents. With such a large proportion of our land devoted to, or influenced by, transportation, this is an extremely important area of attention.

Opportunities

When we can influence the development process prior to site selection and acquisition, there is tremendous opportunity to create facilities with far more responsible land-use and transportation components than are typical. Only rarely, however, can we influence decisions at such a macro scale. Usually, we have to work with a site that has already been selected, or—even more commonly—we have to work with existing facilities. Here we have greening opportunities of two kinds. One has to do with providing for, and creating incentives for, alternative transportation methods: bicycle, carpooling and public transit. The comfort and safety of these alternative transportation modes play a large role in breaking reliance on the single-occupant automobile. The second opportunity lies in how parking, typically the first- or second-largest land use, can be made more environmentally responsible.

Technical Information

Suggested practices for greening transportation to and from Federal facilities and dealing more responsibly with land use within a facility are addressed below.

OPPORTUNITIES OTHER THAN THE AUTOMOBILE

Many people avoid anything other than commuting by automobile because of the difficulties associated with changing one’s mode of transportation. Providing amenities on site that foster and facilitate people’s use of public transit (including approaches like the “Kiss and Ride” program in the Washington, D.C., area), ride-sharing, carpooling, vanpooling, and other multi-occupant modes of commuting can reduce the land area necessary for parking and vehicle circulation at a facility. Try to develop a traffic management plan that:

- Works with public transit systems to encourage and promote their use;
- Provides incentives or “perks” to employees for ride-sharing and use of public transit—incentives might include privileged parking locations for vans, vehicles for ride-sharing, and bus passes, often provided at volume discounts by bus systems to large employers;
- Comfortably accommodates other modes of transportation on site, perhaps at the expense of convenient, close-in parking;
- Lowers the number of employees arriving in single-occupancy vehicles by encouraging other modes of transportation;
- Proactively works with the local municipality to provide safe pedestrian crossings on adjacent streets, and on routes leading to and from public transit stops or facilities (examine TEA-21 and other Federal alternative transportation funding mechanisms that might improve access to public transit); and
- Provides shuttle service to and from airports, train stations, light rail stops, and even bus stops (examine private/public partnership opportunities for multiple-user benefits).

For bicyclists and pedestrians:

- Provide safe and clearly defined pathways across and around the facility, including all entrances;

- Provide pedestrian-friendly access to public transit/transportation, including all-weather shelters and well-lighted, secure facilities and routes;
- Provide bicycle parking and locking facilities near supervised or well-used public areas that are well-lighted and secure—perhaps even inside or at least under shelter;
- Provide designated on-site bicycling routes that are user-friendly; and
- Provide shower facilities for bicycle and pedestrian commuters.
- Plant windrows and hedgerows of trees to lessen the microclimatic impact of solar radiation absorption of large dark surfaces of asphalt paving. This can also improve comfort and reduce automobile air-conditioning use when employees get in their cars.
- Plan and design stormwater detention/retention facilities that are aesthetically attractive and environmentally responsible by using pond aeration and by establishing planted littoral (shoreline) shelves at the water's edge to support water-loving plant species that, in turn, can improve water quality.
- Consider the use of above- or below-ground parking structures when climate, space limitations, or other needs (such as stormwater management and protection of sensitive wetland habitat) suggest it. While parking structures tend to be built for only one purpose and one general category of size of vehicle, keep in mind that, with the pace of technological change, the needs and design requirements of these facilities may significantly change in the future. Designing parking structures for adaptability is advisable. Also consider features like natural-gas fueling and electric-vehicle recharging.
- Public/private partnerships for parking structures—particularly when planned with corporate neighbors—can provide incentive-based opportunities for the private sector. Building parking facilities that allow weekend or off-peak usage by others should also be considered—the objective being to get the most use out of the investment and possibly realize broader benefits to both the community and the facility.



The National Institutes of Health (NIH), in Bethesda, Maryland, has contracted for parking spaces at facilities located several miles from the campus. Employees have the option of parking at one of those locations and riding a shuttle bus to the campus. The park-and-ride system shortens the employees' trips and reduces the number of parking spaces that would otherwise have to be provided on campus. About 500 employees, out of 9,000 who drive, were using this option in 2000.

PARKING INFRASTRUCTURE

Parking can be the single biggest user of land area at a facility. Anything that can reduce the area devoted to parking results in a reduction of polluted surface runoff (stormwater), greater groundwater recharge, more green area for employee recreation, a reduction in localized warming from parking lots ("urban heat island" effect), and improved air quality from more oxygen-producing plants. Practices that can create more environmentally responsible surface parking include the following:

- Lay out surface parking lots to allow for sheetlike drainage to infiltration and bioremediation strips and swales, minimizing points of concentration and piped flow, and maximizing groundwater recharge and pollutant removal (see *Section 3.5 – Stormwater Management*).
- Lay out parking lots to minimize changes to the topography (and therefore impacts on groundwater and soil regimes) by planning parking aisles that run parallel to the topographic contours, by leaving sloped areas between parking terraces, and by making runoff more sheetlike and less concentrated.

References

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Contacts

American Planning Association, 122 South Michigan Avenue, Suite 1600, Chicago, IL 60603; (312) 431-9100, (312) 431-9985 (fax); www.planning.org.